

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 1-10 in accordance with the following:

1. (CURRENTLY AMENDED) A ~~t~~ransmitter for speech coding and decoding by using an additional bit application method, comprising:

a standard speech coder for ~~receiving a speech signal while~~ dividing the speech signal into spectrum information ~~representing a vocal tract function and~~ an excited signal component and generating standard coded bit streams by performing modeling, quantizing, and coding with respect to the spectrum information and the excited signal;

a quality enhancement coder for obtaining errors between the quantized signal and the ~~unquantized~~desired signal with respect to ~~each of the spectrum information and~~ the excited signal component, and generating coded bit streams by performing additional quantization with respect to the obtained errors; and,

a multiplexing block for multiplexing the bit streams obtained at each of the coders and transmitting the multiplexed bit streams to a receiver.

2. (CURRENTLY AMENDED) The transmitter according to claim 1, wherein the quality enhancement coder quantizes ~~each of the errors~~ by using an additional bits~~bit~~ to perform multi-stage quantization.

3. (CURRENTLY AMENDED) The transmitter according to claim 1, wherein the quality enhancement coder uses ~~a~~an algebraic codebook~~vector quantization method~~ for additional quantization.

4. (CURRENTLY AMENDED) The transmitter according to claim 1, wherein the ~~spectrum information~~quality enhancement coder obtains an error between the quantized signal and the unquantized signal with respect to the spectrum information, and generates a coded bit stream by performing the additional quantization with respect to the obtained error~~is an LSP parameter~~.

5. (CURRENTLY AMENDED) The transmitter according to claim 14, wherein the quality enhancement coder performs additional quantization with respect to a predetermined part of the spectrum information in accordance with quantization performance of the standard speech coder.

6. (CURRENTLY AMENDED) The transmitter according to claim 14, wherein the spectrum information is an LSP(Line Spectrum Pair) parameter,

wherein the quality enhancement coder comprises:

an LSP error quantization block for receiving an unquantized LSP parameter and a quantized LSP parameter from the standard speech coder and performing a quantization procedure with respect to errors of the two LSP parameters; and,

an excited signal error quantization block for receiving an unquantized excited signal and a quantized excited signal from the standard speech coder and performing a quantization procedure with respect to errors of the two excited signals.

7. (CURRENTLY AMENDED) The transmitter according to claim 16, wherein the quality enhancement coder comprises an LSP interpolation information quantization block for minimizing parameter errors between the LSP parameter obtained at each sub-frame of the standard speech coder and the LSP parameter obtained through a quantization procedure and an interpolation procedure by using additional bits.

8. (CURRENTLY AMENDED) A receiver for speech coding and decoding by using an additional bit allocation method, comprising:

a demultiplexing block for ~~receiving bit streams of a speech signal and demultiplexing the bit streams of the speech signal to generate an LSP(Line Spectrum Pair) index and an additional LSP index to compensate the error of spectrum information of the speech signal, and~~ an excited signal index and an additional excited signal index to compensate the error of an excited signal component of the speech signal;

a quality enhancement decoder for generating error components of the excited signal by performing a dequantization procedure with respect to the additional excited signal index; and

a standard speech decoder for ~~receiving the multiplexed index signals, performing a dequantization procedure with respect to the LSP index and the excited signal index, spectrum information and an excited component of the speech signal and restoring the speech signal based~~

~~on the by combining the dequantized LSP index, the dequantized excited signal index, spectrum information and excited signal component with a corresponding and the error component of the spectrum information and the excited signal; and,~~

~~a quality enhancement decoder for receiving the additional LSP index and the additional excited signal index and generating error components of the spectrum information and the excited signal by performing a dequantization procedure with respect to the additional LSP index and the additional excited signal index.~~

9. (CURRENTLY AMENDED) The receiver according to claim 8, wherein the spectrum information is an LSP parameter,

wherein the standard speech coder comprises: an LSP dequantization block for receiving the LSP index from the demultiplexed bit streams of the speech signal and restoring an LSP parameter by performing a dequantization procedure with respect to the LSP index;

an excited signal dequantization block for receiving the excited signal index from the demultiplexed bit streams of the speech signal and restoring the excited signal by performing a dequantization procedure with respect to the excited signal index; and,

a speech combining block for ~~respectively combining the restored excited signal component and the error components of the spectrum information and the excited signal into the restored LSP parameter and the excited signal and restoring the speech signal by processing the combined signal and the restored LSP parameter~~two combined signals.

10. (CURRENTLY AMENDED) The receiver according to claim 8, wherein the ~~quality~~spectrum information is an LSP parameter,~~enhancement block comprises:~~

wherein the standard speech coder comprises: an LSP-error dequantization block for receiving the LSP index from the demultiplexed bit streams of the speech signal and restoring LSP parameter~~and generating an error component of the spectrum information by performing a dequantization procedure with respect to the LSP index; and,~~

~~an excited signal-error dequantization block for receiving the additional excited signal index from the demultiplexed bit streams of the speech signal and restoring and generating an error component of the excited signal by performing a dequantization procedure with respect to the additional excited signal index; and~~

a speech combining block for respectively combining error components of the spectrum information and the excited signal into the restored LSP parameter and the excited signal and restoring the speech signal by processing the two combined signals.